## **CLAIMS**

What is claimed is:

1. A method for fabricating a soft ferromagnetic film structure with controlled
edge stress anisotropy and enhanced magnetization switching speed, comprising the steps of
forming a soft ferromagnetic film structure, said soft ferromagnetic film structure
having one or more edges exhibiting edge stress anisotropy; and
forming a non-ferromagnetic film structure along said one or more edges to induce
stress contributions therein that control said edge stress anisotropy.

- 2. A method in accordance with Claim 1 wherein said soft ferromagnetic film structure comprises a transition metal alloy.
- 3. A method in accordance with Claim 1 wherein said non-ferromagnetic film structure comprises a material selected from the group consisting of metallic materials and non-metallic materials.
- 4. A method in accordance with Claim 1 wherein said non-ferromagnetic film structure is formed to adjust tensile stress generally perpendicularly to said one or more edges of said soft ferromagnetic film structure.

- 5. A method in accordance with Claim 1 wherein one or both of said soft ferromagnetic film structure and said non-ferromagnetic film structure are formed using an electroplating process.
  - 6. A method in accordance with Claim 1 wherein one or both of said soft ferromagnetic film structure and said non-ferromagnetic film structure are formed using a deposition process.
    - 7. A method in accordance with Claim 1 wherein said soft ferromagnetic film structure comprises a material from the group consisting of alloys of nickel-iron (permalloy), nickel-iron-cobalt alloys, Sendust and alloys of cobalt-zirconium-niobium, cobalt-zirconium-tantalum, and cobalt-iron-boron.
    - 8. A method in accordance with Claim 1 wherein said non-ferromagnetic film structure comprises a material from a first metal group consisting of palladium, copper and nickel-phosphorus alloy or a second non-metal group consisting of oxides of alumina and oxides of silicon.
  - 9. A method in accordance with Claim 1 wherein said soft ferromagnetic film structure is a magnetic write head yoke structure.

1	10. A method in accordance with Claim 1 wherein said soft ferromagnetic film
2	structure is an MRAM structure or a thin film inductor for RF or microwave circuits.
1	11. A magnetic read/write head transducer, comprising:
2	a yoke formed from first and second pole pieces extending from a back gap region
3	thereof to a pole tip region and sandwiching an inductive coil;
4	said pole pieces each being formed with a magnetic domain-controlled, patterned soft
5	ferromagnetic film structure having enhanced magnetization switching speed;
6	non-ferromagnetic film structures formed along patterned edges of said soft
7	ferromagnetic film structures; and
8	said non-ferromagnetic film structures being adapted to induce stress contributions in
9	said soft ferromagnetic film structures to control edge stress anisotropy and magnetic domain
10	orientation therein.
1	12. A transducer in accordance with Claim 11 wherein said soft ferromagnetic film

- 1 12. A transducer in accordance with Claim 11 wherein said soft ferromagnetic film structures comprise a transition metal alloy.
  - 13. A transducer in accordance with Claim 11 wherein said non-ferromagnetic film structures comprise a material selected from the group consisting of metallic materials and non-metallic materials.

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14. A transducer in accordance with Claim 11 wherein said non-ferromagnetic film structures are formed to adjust tensile stress generally perpendicularly to patterned edges of said soft ferromagnetic film structures.

- 15. A transducer in accordance with Claim 11 wherein one or both of said soft ferromagnetic film structures and said non-ferromagnetic film structures are electroplated structures.
- 16. A transducer in accordance with Claim 11 wherein one or both of said soft ferromagnetic film structures and said non-ferromagnetic film structures are non-plated deposited structures.
- 17. A transducer in accordance with Claim 11 wherein said soft ferromagnetic film structures comprise a material from the group consisting of alloys of nickel-iron (permalloy), nickel-iron-cobalt alloys, Sendust and cobalt-zirconium-niobium alloys.
- 18. A transducer in accordance with Claim 11 wherein said non-ferromagnetic film structures comprises a material from a first metal group consisting of palladium, copper and nickel-phosphorus alloy or a second non-metal group consisting of oxides of alumina and oxides of silicon.

1	19. A transducer in accordance with Claim 11 wherein said soft ferromagnetic film
2	structures define the entirety of said pole pieces.
1	20. A method in accordance with Claim 11 wherein said soft ferromagnetic film
2	structures define the pole tips of said pole pieces.
1	21. A disk drive having a housing, a rotatable magnetic recording medium in the
2	housing, an actuator carrying an actuator arm, a suspension, and a magnetic read/write
3	transducer disposed in adjacent relationship with the recording medium, said transducer
4	comprising:
5	a yoke formed from first and second pole piece structures sandwiching an inductive coil;
6	said pole piece structures each including a magnetic domain-controlled, patterned soft
7	ferromagnetic film having enhanced magnetization switching speed;
8	said pole piece structures each further including non-ferromagnetic material formed
9	along patterned edges of said patterned film; and
10	said non-ferromagnetic material being adapted to induce stress contributions in said
11	patterned film to control edge stress anisotropy and magnetic domain orientation therein.
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22. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures comprise a transition metal alloy.

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- A disk drive in accordance with Claim 21 wherein said non-ferromagnetic film 1 23. structures comprise a material selected from the group consisting of metallic materials and 2 3 non-metallic materials.
  - A disk drive in accordance with Claim 21 wherein said non-ferromagnetic film 24. structures are formed to adjust tensile stress generally perpendicularly to patterned edges of said soft ferromagnetic film structures.
    - A disk drive in accordance with Claim 21 wherein one or both of said soft 25. ferromagnetic film structures and said non-ferromagnetic film structures are electroplated structures.
    - A disk drive in accordance with Claim 21 wherein one or both of said soft 26. ferromagnetic film structures and said non-ferromagnetic film structures are non-plated deposited structures.
  - 27. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures comprise a material from the group consisting of alloys of nickel-iron (permalloy), nickel-iron-cobalt alloys, Sendust and cobalt-zirconium-niobium alloys.
- A disk drive in accordance with Claim 21 wherein said non-ferromagnetic film 28. 1 . structures comprises a material from a first metal group consisting of palladium, copper and

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- 3 nickel-phosphorus alloy or a second non-metal group consisting of oxides of alumina and
- 4 oxides of silicon.
- 1 29. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures define the entirety of said pole pieces.
- 1 30. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures define the pole tips of said pole pieces.